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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/557,512	11/30/2006	Jon Kristinsson	3985-053475	8820

28289 7590 11/25/2009

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EXAMINER	
RUBY, TRAVIS C	
ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
11/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/557,512	KRISTINSSON ET AL.	
	Examiner	Art Unit	
	TRAVIS RUBY	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Andel (US5832992, as cited by applicant).

Van Andel teaches:

Re Claim 10: A ventilation system for exchanging outside air with air in a room, comprising:

a fine wire heat exchanger (ref 1 in Figure 1, Column 1 lines 31-38) formed with first and second channels (ref 3 and 4) configured in heat-exchanging contact and each defined with respective inlets and outlets, and arranged to have the first channel inlet and the second channel outlet to be in fluid communication with the outside air, and the first channel outlet and the second channel inlet to be in fluid communication with the air in the room (Column 5 lines 54-62); and

a means for balancing respective flows of air (ref 47) through the first and second channels to maximize heat exchange between the respective flows (Column 8 lines 5-12, The rotor is capable of balancing air flow).

Re Claim 18: The ventilation system according to claim 10 and adapted for cleaning in a dishwasher, wherein the heat exchanger is removably configured to have dimensions enabling receipt within the dishwasher (Column 4 lines 65-67, this size would fit into a dishwasher).

Re Claim 19: The ventilation system according to claim 10, wherein the heat exchanger is configured to have a length, a width, and a height each less than about 0.55 meters (Column 4 lines 65-67).

Re Claim 20: A ventilation system adapted to be integrally mounted in a facade wall of a room and configured for communicating air inside the room with outside air through the facade wall (Column 9 lines 24-29, Figure 17 illustrates that the heat exchanger can be placed in the wall), comprising:

a fine wire heat exchanger (ref 1 in Figure 1, Column 1 lines 31-38) formed with first and second channels (ref 3 and 4), configured in heat-exchanging contact and each defining respective inlets and outlets, and arranged to have the first channel inlet and the second channel outlet to be in fluid communication with the outside air, and the first channel outlet and the second channel inlet to be in fluid communication with the air in the room (Column 5 lines 54-62); and

a means for balancing respective flows of air (ref 47) through the first and second channels to maximize heat exchange between the respective flows (Column 8 lines 5-12, The rotor is capable of balancing air flow).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 11-13 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel (US5832992, as cited by applicant) in view of Haglid (US2002/0153133A1).

The teachings of Van Andel have been discussed above.

Re Claim 11 & 21: Van Andel fails to teach a means for balancing comprising: a first ventilator in fluid communication with the first channel; a second ventilator in fluid communication with the second channel; a first temperature sensor in fluid communication with the first channel outlet; a second temperature sensor in fluid communication with the second channel inlet; and a controller in communication with the first and second temperature sensors and adapted to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal.

Haglid teaches a first ventilator in fluid communication with the first channel (ref 26, Paragraph 25);

a second ventilator in fluid communication with the second channel (ref 28, Paragraph 25);

a first temperature sensor in fluid communication with the first channel outlet (ref 84, Paragraph 34);

a second temperature sensor in fluid communication with the second channel inlet (ref 86, Paragraph 34); and

a controller (ref 96 Figure 4) in communication with the first and second temperature sensors and adapted to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal (Paragraph 79).

In view of Haglid's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include an air balancing means to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air.

Re Claim 12 & 22: Van Andel fails to teach a means for balancing comprising:

a ventilator in fluid communication with the first channel; a ventilator in fluid communication with the second channel; a first temperature sensor in fluid communication with the first channel inlet; a second temperature sensor in fluid communication with the second

channel outlet; and a controller in communication with the first and second temperature sensors and configured to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal.

Haglid teaches a ventilator in fluid communication with the first channel (ref 26, Paragraph 25);

a ventilator in fluid communication with the second channel (ref 28, Paragraph 25);

a first temperature sensor in fluid communication with the first channel inlet (ref 84, Paragraph 34);

a second temperature sensor in fluid communication with the second channel outlet (ref 86, Paragraph 34); and

a controller (ref 96 Figure 4) in communication with the first and second temperature sensors and configured to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal (Paragraph 79). (It is apparent that the temperature sensors can be placed in different locations in the channels with the same temperature control result.)

In view of Haglid's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include an air balancing means to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air.

Re Claim 13 & 23: Van Andel fails to teach a means for balancing comprising: a third temperature sensor in fluid communication with the first channel outlet; a fourth temperature sensor in fluid communication with the second channel inlet; and wherein the controller is further in communication with the third and fourth temperature sensors and is further configured to control the first and second ventilators, whereby a first temperature difference between the first and third temperature sensors is approximately equal to a second temperature difference between the second and fourth temperature sensors.

Haglid teaches a third temperature sensor in fluid communication with the first channel outlet (ref 88);

a fourth temperature sensor in fluid communication with the second channel inlet (It is well known in the art to add additional temperature sensors to ventilators); and

wherein the controller (ref 96 Figure 4) is further in communication with the third and fourth temperature sensors and is further configured to control the first and second ventilators, whereby a first temperature difference between the first and third temperature sensors is approximately equal to a second temperature difference between the second and fourth temperature sensors (Paragraph 79).

In view of Haglid's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include an air balancing means with additional temperature sensors to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air. The additional temperature sensors allows for precise measurements of the air temperature.

5. Claims 14-17 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel (US5832992, as cited by applicant) in view of Liljequist (US4428197).

The teachings of Van Andel have been discussed above.

Re Claim 14 & 24: Van Andel fails to teach a means for balancing comprising: a first double-acting cylinder incorporating a first piston defining first and second chambers; a second double-acting cylinder including a second piston connected to the first piston and defining third and fourth chambers; whereby displacement of the first piston to enlarge the first chamber thereby enlarges the third chamber; and wherein the means for balancing is further defined with an inlet and an outlet and a means for controlling fluid communication between: a. the first channel with the first and fourth chambers; b. the second channel with the second and third chambers; c. the inlet with the second and third chambers; and d. the outlet with the first and fourth chambers.

Liljequist teaches a first double-acting cylinder (ref 169) incorporating a first piston (ref 170) defining first and second chambers (Figure 9 illustrates two chambers);

a second double-acting cylinder (ref 167) including a second piston (ref 168) connected to the first piston (ref 170) and defining third and fourth chambers (Figure 9 illustrates two chambers);

whereby displacement of the first piston to enlarge the first chamber thereby enlarges the third chamber (Figure 9, Column 16 lines 17-32. The crankshaft connects the two cyclinders and pistons together. When piston, ref 170, increases displacement it causes piston, ref 168, to decrease displacement); and

wherein the means for balancing is further defined with an inlet and an outlet and a means for controlling fluid communication between: a. the first channel with the first and fourth chambers; b. the second channel with the second and third chambers; c. the inlet with the second and third chambers; and d. the outlet with the first and fourth chambers (Column 16 lines 26-32, The pistons and the crankshaft control the fluid movement. The operation of a stirling engine is well known in the art).

In view of Liljequist's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include an air piston balancing means to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air. It also would balance the air pressure, thus making the system stable and reliable.

Re Claim 15 & 25: Van Andel fails to teach at least one ventilator in fluid communication with one or more of the group that includes the inlet, the outlet, the first channel, and the second channel.

Liljequist teaches at least one ventilator (ref 199) in fluid communication with one or more of the group that includes the inlet, the outlet, the first channel, and the second channel (Column 18 lines 28-30).

In view of Liljequist's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include fan to Van Andel's heat exchanger because it allows for increased energy efficiency since it is well known in the art that increased air flow increases heat exchange.

Re Claim 16 & 26: Van Andel fails to teach a means for driving at least one of the first and second pistons.

Liljequist teaches a means for driving at least one of the first and second pistons (ref 150, Column 17-21).

In view of Liljequist's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include an air piston balancing means to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air.

Re Claim 17: Van Andel fails to teach the means for driving further incorporates at least one linear motor.

Liljequist teaches the means for driving further incorporates at least one linear motor (ref 150, Column 16 lines 17-21).

In view of Liljequist's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include an air piston balancing means driven by a linear motor to Van Andel's heat exchanger because it allows for precise control over the pistons. This would allow for increased optimization and the ability to change the system settings easily.

6. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel (US5832992, as cited by applicant) in view of Steneby et al (US2003/0159802A1).

The Teachings of Van Andel have been discussed above

Re Claim 27: Van Andel fails to teach a ventilation system for mounting in a wall of a room, the wall having a thickness, and the ventilation system being configured to communicate air inside the room with air outside the wall, comprising: a heat exchanger, configured with a cross-sectional thickness that is approximately equal to the wall thickness,

Steneby et al teaches a ventilation system with a heat exchanger that is mounted into the wall of a building (Paragraphs 10-12 and 74, Figures 14 and 15).

In view of Steneby et al's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include a ventilation system that can fit into a wall to Van

Andel's fine wire heat exchanger because it minimizes the installation space and reduces cost by not having to run ductwork.

7. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel (US5832992, as cited by applicant) in view of Steneby et al (US2003/0159802A1) and in further view of Haglid (US2002/0153133A1).

The Teachings of Van Andel as modified by Steneby et al have been discussed above

Re Claim 28: Van Andel fails to teach a means for balancing comprising: a first ventilator in fluid communication with the first channel; a second ventilator in fluid communication with the second channel; a first temperature sensor in fluid communication with the first channel outlet; a second temperature sensor in fluid communication with the second channel inlet; and a controller in communication with the first and second temperature sensors and adapted to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal.

Haglid teaches a first ventilator in fluid communication with the first channel (ref 26, Paragraph 25);

a second ventilator in fluid communication with the second channel (ref 28, Paragraph 25);

a first temperature sensor in fluid communication with the first channel outlet (ref 84, Paragraph 34);

a second temperature sensor in fluid communication with the second channel inlet (ref 86, Paragraph 34); and

a controller (ref 96 Figure 4) in communication with the first and second temperature sensors and adapted to control the first and second ventilators, whereby temperatures sensed by the first and second temperature sensors are approximately equal (Paragraph 79).

In view of Haglid's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include an air balancing means to Van Andel's heat exchanger

because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Andel (US5832992, as cited by applicant) in view of Steneby et al (US2003/0159802A1) and in further view of Liljequist (US4428197).

The Teachings of Van Andel as modified by Steneby et al have been discussed above

Re Claim 29: Van Andel fails to teach a means for balancing comprising: a first double-acting cylinder incorporating a first piston defining first and second chambers; a second double-acting cylinder including a second piston connected to the first piston and defining third and fourth chambers; whereby displacement of the first piston to enlarge the first chamber thereby enlarges the third chamber; and wherein the means for balancing is further defined with an inlet and an outlet and a means for controlling fluid communication between: a. the first channel with the first and fourth chambers; b. the second channel with the second and third chambers; c. the inlet with the second and third chambers; and d. the outlet with the first and fourth chambers.

Liljequist teaches a first double-acting cylinder (ref 169) incorporating a first piston (ref 170) defining first and second chambers (Figure 9 illustrates two chambers);

a second double-acting cylinder (ref 167) including a second piston (ref 168) connected to the first piston (ref 170) and defining third and fourth chambers (Figure 9 illustrates two chambers);

whereby displacement of the first piston to enlarge the first chamber thereby enlarges the third chamber (Figure 9, Column 16 lines 17-32. The crankshaft connects the two cyclinders and pistons together. When piston, ref 170, increases displacement it causes piston, ref 168, to decrease displacement); and

wherein the means for balancing is further defined with an inlet and an outlet and a means for controlling fluid communication between: a. the first channel with the first and fourth

chambers; b. the second channel with the second and third chambers; c. the inlet with the second and third chambers; and d. the outlet with the first and fourth chambers (Column 16 lines 26-32, The pistons and the crankshaft control the fluid movement. The operation of a stirling engine is well known in the art).

In view of Liljequist's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include an air piston balancing means to Van Andel's heat exchanger because it allows for optimal energy efficiency when it comes to exchanging heat from the outside air to the indoor air. It also would balance the air pressure, thus making the system stable and reliable.

Response to Arguments

9. Applicant's arguments filed 9/14/2009 have been fully considered but they are not persuasive.

10. In response to applicant's argument in Claim 1 that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., controlling two flows of air independently) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In response to applicant's argument that the rotor of Van Andel does not constitute a means for balancing respective flows of air through the first and second channels to maximize heat exchange between the respective flows, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. One embodiment of the Van Andel rotor draws in air from two air flows at an equal rate. When two objects are in balance, it

typically means that the first object is equal to the second object and is therefore in equilibrium. Thus, since one embodiment of the Van Andel rotor draws air at equal rates, it can be said that the rotor is balancing the flows of air. There is no mention in the claim limitation about adaptively controlling the air flows independently to achieve the maximum heat transfer. Therefore, the Van Andel reference does teach the claimed limitations.

11. In response to applicants arguments to Claims 11-12 and 21-22 that Haglid does not include sensors at the outlets of the channels for measuring the temperature at the outlets of the channels, the examiner disagrees. As can be seen in Figure 3, Haglid clearly shows a first channel outlet temperature sensor (ref 84), a second channel inlet temperature sensor (ref 86), and a third temperature sensor (ref 88). It would have been obvious to add another temperature sensor at the outlet since this is well known in the art. By having more than one temperature sensor, Haglid is capable of determining temperature differences in the ventilator channels by inputting the signals from the multiple temperature sensors into the controller.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRAVIS RUBY whose telephone number is (571)270-5760. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Travis Ruby/
Examiner, Art Unit 3744

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744